

## ***Ambient Air Monitoring Report***

***National Industries, Inc. Reclamation Area Site  
Park Hills, Missouri***

***Prepared for  
The Doe Run Company***

***March 2012***



***1001 Diamond Ridge Suite 1100  
Jefferson City, MO 65109  
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**40391435**



**Superfund**

June 19, 2012

Mr. Mark Nations  
The Doe Run Company  
P.O. Box 1633  
Desloge, Missouri 63601

**Re: Ambient Air Monitoring Report – National Site**

Dear Mr. Nations:

Please find attached the March 2012 “*Ambient Air Monitoring Report*” for The Doe Run Company at the National Industries, Inc. Reclamation Area Sites, located near Park Hills, Missouri.

This report will include the following:

- **Glossary of Terms** – Listing of the abbreviations used for each parameter and unit.
- **Ambient Air Quality Standards** – Lists the maximum allowable concentrations for the measured parameters.
- **TSP, Lead & PM<sub>10</sub> Particulate Summaries** – Includes the averages of each monitored parameter, which relates to the federal standards.
- **Particulate and Lead Analysis Spreadsheets.**
- **Lab Results (lead & cadmium)** – Lab reports from Inovatia Laboratories, LLC.
- **Meteorological Data Printouts** – This supplies printouts of each parameter.

Barr Engineering Company offers this report as an independent laboratory. This includes the weighing of filters, obtaining lead and cadmium analysis, compiling the data, and preparing the report. No interpretation of the data or analysis of the results is implied or intended. Should you have any questions regarding this report, please call.

Respectfully,



Richard J. Campbell, PE  
Chemical Engineer  
Senior Environmental Consultant

c: Kathy Rangen  
Jason Gunter  
Ty Morris  
Kevin Lombardozzi

## **GLOSSARY OF TERMS**

$\mu\text{g}/\text{m}^3$	Micrograms per Cubic Meter
mph	Miles per Hour
Wind Direction	Degrees from True North
TSP	Total Suspended Particulate
PM <sub>10</sub>	Particulate Matter - 10 Microns or Less
mmHg	Millimeters of Mercury

## **NATIONAL AMBIENT AIR QUALITY STANDARDS (NAAQS)**

PM <sub>10</sub> – Particulate Matter	24-Hour*	Annual Maximum	150 $\mu\text{g}/\text{m}^3$
Lead	Calendar Quarter	Arithmetic Mean	1.5 $\mu\text{g}/\text{m}^3$
Lead	Rolling 3-Month Average	Arithmetic Mean	0.15 $\mu\text{g}/\text{m}^3$

TSP (Total Suspended Particulate) – There are no Federal Standards that apply solely for TSP.

\*This standard must be exceeded more than once a year to constitute a violation.





## Particulate Summary

National  
Park Hills, Missouri

2012

Date	PM <sub>10</sub> Big River #4 ( $\mu\text{g}/\text{m}^3$ )	PM <sub>10</sub> Ozark #1 ( $\mu\text{g}/\text{m}^3$ )	PM <sub>10</sub> Soccer #2 ( $\mu\text{g}/\text{m}^3$ )	PM <sub>10</sub> Water Plant #3 ( $\mu\text{g}/\text{m}^3$ )	PM <sub>10</sub> NAAQS ( $\mu\text{g}/\text{m}^3$ )
1-Mar	15	12	12	10	150
4-Mar	10	9	8	7	150
7-Mar	37	31	35	27	150
10-Mar	9	8	8	6	150
13-Mar	16	14	15	13	150
16-Mar	8	7	8	7	150
19-Mar	16	16	20	15	150
22-Mar	7	7	7	7	150
25-Mar	15	15	15	14	150
28-Mar	34	31	30	31	150
31-Mar	24	21	22	21	150
Monthly Average	17	15	16	14	

Please see the particulate analysis sheets for explanations of missing or invalid data.

Note: A summary of the Big River #4 sampler data is also included, because it was part of the QA plan.

***Particulate and Lead Analysis***











## TSP and Lead Analysis

The Doe Run Company

SAMPLER ID P6609

Big River Site #4 - QA

Sample Date	Filter ID	TSP Filter Net Wt. g	Lead Total Wt. $\mu\text{g}$	$T_{av}$ C	$P_{av}$ mmHg	$P_f$ mmHg	Ratio $P_f/P_a$	$Q_a$ $\text{m}^3/\text{min}$	$Q_{std}$ $\text{m}^3/\text{min}$	Elapsed Time hr	Sample Volume $V_{std}$ $\text{m}^3$	Mass Concentrations TSP $\mu\text{g}/\text{m}^3$	Lead $\mu\text{g}/\text{m}^3$
3/1/2012	8546135	0.0797	16	11	739.5	34.5	0.953	1.214	1.238	23.85	1771	45	0.009
3/6/2012	8552196	0.1593	57	15	747.4	34.9	0.953	1.221	1.243	23.25	1733	92	0.033
3/8/2012	8552186	0.0196	< 10	7	749.5	34.0	0.955	1.208	1.266	23.76	1805	11	0.000
3/13/2012	8552167	0.0582	36	19	745.9	35.4	0.952	1.228	1.229	24.02	1771	33	0.020
3/15/2012	8552139	0.0247	< 10	19	746.8	35.4	0.953	1.228	1.231	23.75	1754	14	0.000
3/20/2012	8552120	0.0844	28	23	742.1	35.9	0.952	1.234	1.214	23.88	1739	49	0.016
3/22/2012	8552293	0.0217	12	15	744.0	34.9	0.953	1.221	1.236	23.52	1744	12	0.007
3/27/2012	8552273	0.1058	18	20	745.4	35.6	0.952	1.230	1.225	23.71	1743	61	0.010
3/29/2012	8552244	0.0677	30	19	742.1	35.5	0.952	1.228	1.221	23.79	1743	39	0.017

Valid Samples: 9 9

Scheduled Samples: 9 9

Percent Data Captured: 100% 100%

Monthly Average: 39 0.013

Standard Deviation: 26 0.011

Maximum: 92 0.033

Minimum: 11 0.000

### NOTES

### DEFINITIONS and CALCULATIONS

$T_{av}$  = average temperature in degrees Celsius

$Q_a$  = look up table volumetric flow rate

$P_{av}$  = average station pressure in millimeters of mercury

$Q_{std}$  = total sample volumetric flow rate corrected to standard conditions

$P_f$  = (((Temp in °Kelvin \* Temp Slope))+Temp Int.))\*1.868

$V_{std}$  = total sample volume corrected to standard conditions

$P_f$  = ((Temp in °Kelvin \* 0.0664)+(-0.4213))\*1.868

TSP = mass concentration in  $\mu\text{g}/\text{std m}^3$

$P_f/P_{av}$  = pressure ratio of  $P_f$  and  $P_{av}$  = 1 -  $P_f/P_{av}$

Lead = mass concentration in  $\mu\text{g}/\text{std m}^3$











***Lab Results (Lead and Cadmium)***







120 East Davis Street  
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## ANALYSIS REPORT

**Client Information:**

Barr Engineering Company  
7390 Ohms Lane  
Edina, MN 55439-2330

**Chain of Custody No.:** 12-0292  
**Date Received:** 04/04/12  
**Analysis Method:** 40 CFR §50  
Appendix G

**Location****National**

Lab No.	Filter ID	Date	Site	µg Pb/Filter	µg Cd/Filter	Date - Analyst
121606	8552117	03/19/12	#3 East - WTP	< 10	< 10	04/19/12 - DS
121609	8552108	03/20/12	#3 East - WTP	< 10	< 10	04/19/12 - DS
121612	8552300	03/21/12	#3 East - WTP	12	< 10	04/19/12 - DS
121615	8552290	03/22/12	#3 East - WTP	< 10	< 10	04/19/12 - DS
121618	8552280	03/23/12	#3 East - WTP	< 10	< 10	04/19/12 - DS
121634	8552114	03/19/12	#1 Ozark	22	< 10	04/19/12 - DS
121635	8552115	03/19/12	#2 Soccer	60	< 10	04/19/12 - DS
121636	8552105	03/20/12	#1 Ozark	29	< 10	04/19/12 - DS
121637	8552106	03/20/12	#2 Soccer	85	< 10	04/19/12 - DS
121638	8552103	03/21/12	#1 Ozark	< 10	< 10	04/19/12 - DS
121639	8552104	03/21/12	#2 Soccer	44	< 10	04/19/12 - DS
121640	8552294	03/22/12	#1 Ozark	< 10	< 10	04/19/12 - DS
121641	8552295	03/22/12	#2 Soccer	14	< 10	04/19/12 - DS
121642	8552277	03/23/12	#1 Ozark	< 10	< 10	04/19/12 - DS
121643	8552278	03/23/12	#2 Soccer	< 10	< 10	04/19/12 - DS

Submitted by:

Jennifer Vandelicht  
Digital signature of Jennifer Vandelicht, Inovatia Laboratories, LLC  
Date: 2012.04.20 16:29:57 -05'00'

4/20/12

Date

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### ANALYSIS REPORT

**Client Information:**

Barr Engineering Company  
7390 Ohms Lane  
Edina, MN 55439-2330

**Chain of Custody No.:** 12-0335  
**Date Received:** 04/17/12  
**Analysis Method:** 40 CFR §50  
Appendix G

**Location** **National**

Lab No.	Filter ID	Date	Site	µg Pb/Filter	µg Cd/Filter	Date - Analyst
121831	8552270	03/26/12	#3 East - WTP	< 10	< 10	05/08/12 - DS
121834	8552261	03/27/12	#3 East - WTP	22	< 10	05/08/12 - DS
121837	8552253	03/28/12	#3 East - WTP	36	< 10	05/08/12 - DS
121840	8552241	03/29/12	#3 East - WTP	27	< 10	05/08/12 - DS
121843	8552232	03/30/12	#3 East - WTP	20	< 10	05/08/12 - DS
121859	8552267	03/26/12	#1 Ozark	< 10	< 10	05/09/12 - DS
121860	8552268	03/26/12	#2 Soccer	38	< 10	05/09/12 - DS
121861	8552258	03/27/12	#1 Ozark	77	< 10	05/09/12 - DS
121862	8552259	03/27/12	#2 Soccer	43	< 10	05/09/12 - DS
121863	8552255	03/28/12	#1 Ozark	23	< 10	05/09/12 - DS
121864	8552257	03/28/12	#2 Soccer	52	< 10	05/09/12 - DS
121865	8552238	03/29/12	#1 Ozark	38	< 10	05/09/12 - DS
121866	8552239	03/29/12	#2 Soccer	36	< 10	05/09/12 - DS
121867	8552229	03/30/12	#1 Ozark	20	< 10	05/09/12 - DS
121868	8552230	03/30/12	#2 Soccer	24	< 10	05/09/12 - DS

Submitted by:

Jennifer Vandelicht  
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### ANALYSIS REPORT

**Client Information:**

Barr Engineering Company  
7390 Ohms Lane  
Edina, MN 55439-2330

**Chain of Custody No.:** 12-0265  
**Date Received:** 03/11/12  
**Analysis Method:** 40 CFR §50  
Appendix G

**Location** Big River

Lab No.	Filter ID	Date	Site	µg Pb/Filter	µg Cd/Filter	Date - Analyst
121425	8546124	03/01/12	#4 Primary	13	< 10	04/12/12 - DS
121426	8546135	03/01/12	#4 QA	16	< 10	04/12/12 - DS
121427	8546115	03/02/12	#4 Primary	184	< 10	04/12/12 - DS
121428	8546105	03/05/12	#4 Primary	34	< 10	04/12/12 - DS
121429	8552195	03/06/12	#4 Primary	52	< 10	04/12/12 - DS
121430	8552196	03/06/12	#4 QA	57	< 10	04/12/12 - DS
121431	8552185	03/08/12	#4 Primary	< 10	< 10	04/12/12 - DS
121432	8552186	03/08/12	#4 QA	< 10	< 10	04/12/12 - DS
121433	8552177	03/09/12	#4 Primary	20	< 10	04/12/12 - DS

Submitted by:

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### ANALYSIS REPORT

**Client Information:**

Barr Engineering Company  
7390 Ohms Lane  
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**Chain of Custody No.:** 12-0290  
**Date Received:** 03/29/12  
**Analysis Method:** 40 CFR §50  
Appendix G

**Location** Big River

Lab No.	Filter ID	Date	Site	$\mu\text{g}$ Pb/Filter	$\mu\text{g}$ Cd/Filter	Date - Analyst
121536	8552166	03/12/12	#4 Primary	< 10	< 10	04/17/12 - DS
121537	8552157	03/13/12	#4 Primary	38	< 10	04/17/12 - DS
121538	8552167	03/13/12	#4 QA	36	< 10	04/17/12 - DS
121539	8552149	03/14/12	#4 Primary	14	< 10	04/17/12 - DS
121540	8552138	03/15/12	#4 Primary	< 10	< 10	04/17/12 - DS
121541	8552139	03/15/12	#4 QA	< 10	< 10	04/17/12 - DS
121542	8552129	03/16/12	#4 Primary	< 10	< 10	04/17/12 - DS

Submitted by:

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### ANALYSIS REPORT

**Client Information:**

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7390 Ohms Lane  
Edina, MN 55439-2330

**Chain of Custody No.:** 12-0292  
**Date Received:** 04/04/12  
**Analysis Method:** 40 CFR §50  
Appendix G

**Location** Big River

Lab No.	Filter ID	Date	Site	µg Pb/Filter	µg Cd/Filter	Date - Analyst
121597	8552119	03/19/12	#4 Primary	12	< 10	04/19/12 - DS
121598	8552110	03/20/12	#4 Primary	25	< 10	04/19/12 - DS
121599	8552120	03/20/12	#4 QA	28	< 10	04/19/12 - DS
121600	8552102	03/21/12	#4 Primary	14	< 10	04/19/12 - DS
121601	8552292	03/22/12	#4 Primary	11	< 10	04/19/12 - DS
121602	8552293	03/22/12	#4 QA	12	< 10	04/19/12 - DS
121603	8552282	03/23/12	#4 Primary	< 10	< 10	04/19/12 - DS

Submitted by:

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### ANALYSIS REPORT

**Client Information:**

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Edina, MN 55439-2330

**Chain of Custody No.:** 12-0335  
**Date Received:** 04/17/12  
**Analysis Method:** 40 CFR §50  
Appendix G

**Location** Big River

Lab No.	Filter ID	Date	Site	µg Pb/Filter	µg Cd/Filter	Date - Analyst
121821	8552272	03/26/12	#4 Primary	19	< 10	05/08/12 - DS
121822	8552263	03/27/12	#4 Primary	17	< 10	05/08/12 - DS
121823	8552273	03/27/12	#4 QA	18	< 10	05/08/12 - DS
121824	8552248	03/28/12	#4 Primary	< 10	< 10	05/08/12 - DS
121825	8552256	03/28/12	#4 Primary	63	< 10	05/08/12 - DS
121826	8552243	03/29/12	#4 Primary	31	< 10	05/08/12 - DS
121827	8552244	03/29/12	#4 QA	30	< 10	05/08/12 - DS
121828	8552234	03/30/12	#4 Primary	36	< 10	05/08/12 - DS

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*Meteorological Data*











